

Graduate Student Investigator: Best Practices for Human Research Protections within Online Graduate Research

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ABSTRACT

This paper presents the best practices used by institutional review boards (IRBs) and human research protections programs (HRPPs) to prepare online graduate student investigators for human research protections specific to research within online graduate degree programs or where research supervisors are not proximal to graduate student investigators and their research protocols. In recent years, advances in artificial intelligence (AI), machine learning (ML), and other data mining/scraping forms have adversely impacted individual privacy and the unintended sharing of personally identifiable information (PII). With this growth of ubiquitous digital technologies, such as AI, ML, and data mining/scraping, used across online graduate degree programs, specialized training and preparation are needed to best prepare graduate student researchers for human research protections involving data with PII. Implications for IRBs and HRPPs are also addressed in this rapidly evolving climate, with recommendations for the design of online graduate degree programs that include graduate research and the best strategies to prepare online graduate student investigators for human research protections.

Keywords: Human Research Protections, Institutional Review Boards, Graduate Research, Graduate Education, Human Research Protections Programs, Student Research, Ethics Training

INTRODUCTION

A graduate student's submission of their research to the institutional review board (IRB) or some form of a research ethics committee is often a rite of passage remembered long after the student has completed the graduate degree. The purpose of the IRB is to ensure the safety of human subjects involved in research, privacy, and confidentiality for human subjects identifiers, fairness and equity in research recruitment, and to ensure risks are minimized for all research involving human subjects and/or their data, and to make certain no physical or psychological harm comes to the research participants (Lewis & Throne, 2021). In short, graduate student

researchers must be best prepared to follow the rules and regulations to ensure ethical and responsible graduate research is conducted. However, some graduate student researchers blamed their research supervisors or the institution for lacking confidence and preparedness (Ciampa & Wolfe, 2019). Other graduate student researchers shared concerns over the constraints on their research due to the IRB and called for reimagining ethical research preparation in graduate education (Slovin & Semenec, 2019).

While submission of the graduate research protocols to the IRB or other ethical review processes may often be seen as a critical milestone for graduate student researchers, some past scholarly researchers have noted the impediments that may be encountered in the submission of the research to the IRB (Lewis & Throne, 2021; Lynch & Kuntz, 2019; Slovin & Semenec, 2019). Some institutions maintain "normalized research" expectations that may lead to unintended obstacles for graduate student researchers designing research protocols that may deter from what may often be perceived as this normalized course of inquiry (Lynch & Kuntz, 2019, p. 12). For example, Lynn and Kurtz (2019) reported on past research that noted this positioning of the IRB or other academic review as the gatekeeper for traditional expectations had been found to lead graduate student researchers to employ research protocols to ensure such reviews are "without interrogation," thereby deviating from their initial inquiry intentions (p. 12). At the same time, others have referred to this normalized or traditional IRB journey as a "post-positivist" view to maintain a status quo in the expectations for graduate research (Slovin & Semenec, 2019, p. 15).

Yet, still, others have noted that some faculty researchers perceive the IRB as an unnecessary process and conduct research out of bounds even though they understand the IRB and their aims are consistent with a desire to advance knowledge while protecting human subjects from harm or risk (Reisig et al., 2022). Unfortunately, these intentional IRB boundary violations may be passed on within the mentoring process of graduate student researchers when the online graduate program does not provide an otherwise sound and adequate foundation for ethical preparations to ensure responsible research. In this context, responsible and ethical research requires the training of graduate student researchers to comply with the policies and expectations of the IRB and/or human research protections program (HRPP) or other ethical research review processes.

Concurrently, other past researchers have reported on graduate students' frustration over their unpreparedness when submitting their research protocols to the IRB (Ciampa & Wolfe, 2019). In a study of a Doctor of Education program, Ciampa and Wolfe (2019) noted that graduate students reported receiving no preparation for the intricacies of submission of their research to the IRB or an understanding of the expectations for data collection and analysis in their submissions. Graduate students shared these feelings of unpreparedness from designing their research to completing the IRB application, and thereby, risks in the submission of the IRB application were identified as they had little confidence in whether their research protocols would be accepted.

When graduate student researchers' preparation for ethical and responsible research and human subjects' protections is not addressed intentionally within the graduate

program, the problems reported in the past scholarship for these students' experience may persist. However, with the emergent use of artificial intelligence (AI), machine learning (ML), and other ubiquitous technologies in graduate research, this preparation becomes even more essential to ensure the practice of ethical and responsible graduate research across disciplines. When well synthesized within the design of the graduate program, a research component that includes preparation and understanding of the ethical requirements of IRB research can best prepare graduate students to become post-graduate independent researchers. The purpose of this chapter is to present the latest trends and best practices for the design of online graduate degree programs that include graduate research and the best strategies to prepare student investigators for human research protections.

BACKGROUND

The purpose of the IRB, HRPP, and/or other research ethics review processes in graduate research is to protect research participants, and participant data, and prepare graduate student investigators for ethical and responsible research with human subjects and data with human subject identifiers. Many past researchers have reported on the experiences of stress and frustration from the perceived expectations and pressures surrounding graduate research, including the perceived burdens of the online graduate.

program's research ethics review process. For example, Eliasson and DeHart (2022) called for the need to consider student researcher trauma in addition to human subject's protections for research participants as a component of methodological training. If review procedures considered student investigator trauma as part of the IRB

submission experience, the authors noted that the trauma experienced by researchers would be placed more at the forefront as "a key consideration among risks imposed by the research process" (p. 8).

The ever-evolving nature of digital data collection methods has further complicated the challenges for ethical research review within online graduate programs. As technology is used in all facets of individuals' lives, graduate students' ethical research should be cognizant that ethical research is not exclusionary to disciplines. As student researchers embark on their academic writing journey and develop their methodologies for conducting research, students often employ various forms of data collection. Methods include online surveys or interviews, recruitment via social networking platforms, web scraping, and semantic analysis, with the component of understanding human behavior in some facet. Behavioral data sets can be collected with the use of different mediums (IoT, social media, facial recognition, intelligent homes) amassed through methods akin to data classification, data mining, and pattern recognition and then patterned through AI and machine learning in which the output can be analyzed through many multi-disciplined theoretical lenses (psychology, economics, sociology) (Bhatia-Lin et al., 2019; Saura et al., 2021a; Saura et al., 2021b). A common theme set within the research on the privacy of data is the question of whom is considered the owner of user-generated content (UGC) or user-generated data (UGD) (Saura et al., 2021b). The question can be raised depending upon the collection method to whom behavioral data belongs. The data ownership, be it UGC or UGD, is sometimes elusive and needs ethical oversight and conceptual understanding by both graduate student researchers and their research supervisors.

For example, the Educational Goods Framework (Brighouse et al., 2018) provides a lens for how higher education institutions prioritize and consider values in preparing graduate students to engage in research ethically and responsibly. Such a framework may allow us to explore the knowledge, skills, attitudes, and dispositions institutions want graduate students to develop as they navigate their research roles. The framework may also allow us to explore what institutions value – in conjunction with or in contrast to the values associated with federal IRB policy – as graduate students develop into researchers. Educational goods, then, can be used as an evaluative framework for future research to discover how an institution's IRB policy impacts the educational goods of an institution's graduate student researchers, to discover what values about research are prioritized by an institution in the implementation of IRB, and to discover what values about research are not prioritized by an institution. Doing so may expand our knowledge about how IRB policy impacts graduate student researchers and potentially broaden the theoretical framework of educational goods (Hseih & Shannon, 2005). Primarily, this and other models' distributive value of adequacy may be important to focus on within the educational goods framework to ensure adequate preparation for new investigators. In an era where graduate student researchers, as well as their research supervisors, may view the IRB or other ethics review as "bureaucratic," it is also an era where ethics review is an essential institutional task to protect individual data privacy and reduce risks and harms to research participants (Brown, 2023, p. 161).

THE BELMONT REPORT AND DEVELOPING ETHICAL RESEARCHERS

The preparation of graduate student researchers by the HRPP, IRB review, and/or other ethical review process involves quintessential steps consistently across fields and disciplines to ensure human.

participants and their data are protected within the research process. In addition to the Common Rule¹ that mandates the U.S. federal regulations for human research protections, these steps are particularly guided by *The Belmont Report*² to ensure three ethical principles for research with human participants are upheld: Respect for Persons, Beneficence, and Justice. The *Belmont Report* was written by the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979) following the National Research Act of 1974, which was charged to identify the basic ethical principles necessary to underlie the conduct of human subjects research (HSR) and to develop guidelines to ensure ethical and responsible research is conducted in accordance with the principles.

Of course, not all graduate student research is research subject to IRB or another ethical review. Per federal regulations, this research must meet the federal definition of research and involve HSR or data with PII (Pater et al., 2022). Graduate program leadership must first distinguish whether the graduate research project involves actual HSR, or the research expectations defined by federal regulations, such as PII, before incorporating the ethical aspects of graduate research training. These distinctions require careful consideration, especially within a contemporary landscape whereby "computational capacity has greatly increased in the last 20 years, but new capabilities in fields like AI and machine learning are changing the nature of research and leaving significant gaps in both ethical norms and oversight" (Pater et al., 2022, p. 1). These

computational nuances must be closely considered in the design of the graduate research component to ensure appropriate ethical oversight and investigator training has been included within the graduate program to prepare ethical and responsible graduate student researchers best. These decisions can be complicated by the allowances for ubiquitous digital technologies within the graduate research component. They often must be considered from a current perspective as these methods may introduce increased harm/risk for PII. As Huh-Yoo and Rader (2020) stressed

"Being digital meant increasing possibilities of confidentiality breach, unintended collection of sensitive information, and unauthorized data reuse. Concurrently, interviewees found it difficult to pinpoint the direct harms of those risks. The ambiguous, messy, and situated contexts of digital research data did not fit neatly into current human subjects' research protection protocols" (p. 1).

Thus, graduate program leadership must carefully consider how risk assessment will be evaluated when digital technologies are allowed within the graduate research component (Huh-Yoo & Rader, 2020). The next section, Ubiquitous Technologies and Data Ethics, provides more on this.

Preparation for online graduate students to submit their research protocols to the IRB or other ethical review processes is often considered as solely a process-oriented, documental preparation rather than securing the conceptual foundations needed to ensure ethical and responsible research. Reisig et al. (2022) called for educational departments and institutions to make more concerted efforts to ensure sound

ethical practices and training are provided to faculty and students, especially surrounding data management techniques and data sources to properly store and secure data archives. The authors noted the prior research that has shown the following:

¹The Common Rule [45 CFR 46] sets forth the basic policy requirements for the composition and function of the IRB, criteria for IRB approval, informed consent requirements, and definitions, which have been adopted by multiple federal agencies. In addition to the basic policy, additional protections for vulnerable populations are regulated.

² The full text of *The Belmont Report* and details related to the history of the Report is available from the U.S. Health and Human Services Office for Human Research Protections at https://www.hhs.gov/ohrp/regulations-and policy/belmont-report/read-the-belmont-report/index.html

"...it is critical that researchers are made aware of such services and that these data management methods meet the needs of faculty for their full potential to be realized (Whitmire, Boock, and Sutton 2015). Efforts to this end encourage an organizational culture rooted in academic integrity and proper research conduct" (pp. 10-11)

Even when IRB or HRPP policies are established to ensure directives exist for human subject protection, adequate researcher ethical preparation is necessary for the risk of psychological and/or physical harm to be elevated (Reisig et al., 2022).

Specifically, the Belmont principle of *Justice* can prepare graduate student researchers to understand fairness, equity, and inclusion in human subjects' recruitment and data collection. As Friesen et al. (2022) noted, it is essential for IRBs to ensure investigators understand that the principles that protect human subjects from harm may also exclude certain populations from research. Assurances for diversity require intentional "context-specific analysis," especially when involving vulnerable populations within the research protocols (Friesen et al., 2022, p. 10). When graduate student researchers understand research is a social good and research participation is a benefit, risks may be mediated in this context, whereby research participation is also a benefit to participants, not only a risk. However, in the use of ubiquitous technologies for research purposes, this context must also be considered for gaps in ethical oversight in the use of data collection methods that did not exist when The Belmont Report and Common Rule were established (Friesen et al., 2021). Therefore, the balance between risks and benefits for vulnerable populations and other research participants must be further considered in the wake of the contemporary climate with these emerging technologies for research inclusion and participant awareness of PII gathered (Brown, 2023; Friesen et al., 2021; Friesen et al., 2022; Throne, 2022). Further, Hite et al. (2022) called for intentionality in responsible conduct of research (RCR) efforts for research involving graduate student investigators. Ethical dilemmas should be posed to new investigators within an educational setting to elevate their ethical and responsible judgment as to what constitutes RCR in specific situations such as predatory authorship, IRB violations, and the

degree to which ethical challenges can pose harm and risk to research participants (Hite et al., 2022). The authors suggested that these learning activities may best occur within the training setting, such as "infused throughout the university curriculum and supported at the programmatic, departmental, and college levels," to better prepare graduate student researchers prior to facing them within the field (Hite et al., 2022). For example, Stevens and Caskey (2022) suggested this can be accomplished through writing an IRB proposal as an authentic, mentored, and scaffolded assignment to introduce ethical research within graduate coursework. Similarly, Brown (2023) encouraged justice and other ethical principles to be embedded within the curriculum with assurances that ethical reviews are a necessary good for all involved in the research process or those who oversee the work of new investigators who may be novices to what constitutes ethical research practices. The authors concluded the following:

"Instead of considering ethics as a matter of litigation, libel, complaints, and tribunals, they must encourage and enable research ethics committees to become more supportive, developmental, and dynamic, as otherwise, the ethics approvals processes will fail to keep in step with the changing landscape of the social sciences research" (p. 163).

UBIQUITOUS TECHNOLOGIES AND DATA ETHICS

Data ownership and across all facets of individuals' lives, graduate students' ethical research should be cognizant that ethical research is not exclusionary to disciplines.

As student researchers embark on their academic writing journey and develop their methodologies for conducting research, students often employ various forms of data

collection. Methods include online surveys or interviews, recruitment via social networking platforms, web scraping, and semantic analysis, with the component of understanding human behavior in some facet. Behavioral data sets can be collected with the use of different mediums (IoT, social media, facial recognition, intelligent homes) amassed through methods akin to data classification, data mining, and pattern recognition and then patterned through AI and machine learning in which the output can be analyzed through many multi-disciplined theoretical lenses (psychology, economics, sociology) (Bhatia-Lin et al., 2019; Saura et al., 2021a; Saura et al., 2021b). A common theme set within the research on the privacy of data is the question of who is considered the owner of user generated content (UGC) or user-generated data (UGD) (Saura et al., 2021b). The question can be raised depending upon the collection method to whom behavioral data belongs. Data ownership, be it UGC or UGD, is sometimes elusive and needs ethical oversight and conceptual understanding.

As many attempts to comprehend how AI, ML, data mining/scraping, and other ubiquitous technologies are changing a graduate student's everyday life, research using these data collection methods is also being conducted at a rapid pace. Graduate students are reaching to understand, learn, and contribute to the literature in the void of what technology will provide in the coming years in ubiquitous digital technologies, such as artificial intelligence, machine learning, and data mining. Ubiquitous technologies are no longer considered just an Information Technology issue in academic research; the question of how ethical computing in research is disseminated without the researcher having a clear understanding of the technology or how the data is accumulated or

cleaned from datasets (Drolet et al., 2022). Researchers are grappling with the ethical effects of research and the complexity of utilization, repercussions, and the application process from an ethical perspective.

The Melo Report from the U.S. Department of Homeland Security in Science and Technology provided a set of guidelines and ethical principles for communication Technology Research; the proposed framework was developed by both organizational leaders, lawyers, and scholars across the internet and communication technology (ICT) field (U.S. Department of Homeland Security, Science, and Technology, Cyber Security Division [CSD], 2012). The Melo Report has built the ethical framework for ICT research on the Belmont Principals, including respect for human rights and privacy, the informed consent process, confidentiality and anonymity, minimization of harm and risks, and transparency and accountability. The Report was supported by both Association for Computing Machinery (ACM) and the Institute of Electrical and Electronics Engineers (IEEE) Computer Society; the Office for Human Research Protections (OHRP) did not explicitly state its support or opposition to the Menlo Report. The Menlo Report was focused on cybersecurity research ethics and did not directly relate to HSR, which falls under the purview of the OHRP (Fiske & Hauser, 2014). Although the ICT ethical framework has been frequently cited, it has yet to be considered current since 2012 (Finn & Shilton, 2023). Instead, the Report and framework can be found as Archived Content in the Cyber Security Division (CSD) of the U.S. Department of Homeland Security. To ensure that technology is used appropriately for research across various fields, including ICT research, it is crucial to

have a review and a call to action that provides clear guidance for the current research landscape.

As institutions are not required to apply regulatory and federal compliance policies to research that is not federally funded or identified as human subject research, as such, there can be many research protocols that need to be submitted to IRB for protocol review (Hine, 2021). Investigators should not rely on an ethical board. However, the researcher should first conceptually explore the study to understand the ethical needs from the participant recruitment stage to reporting research outcomes. Ethical issues such as identification of the difference between public and private data are issues that Williams (2023) found to be in question from a student perspective. Williams's conceptual article compares public data in newspaper archives as public data to what society may now view within public social media sites. Postulating that if data were available in a private but accessible social media group, do the data remain private? Can the connection of public data in the public domain virtually differ from the relinquishment of the private element when the user provides the information with the understanding of joining and posting information within a social media group? The additional question of informed consent must also be addressed as to whether the social media user is aware of how personally identifiable information (PII) is to be gathered and analyzed. Simple practices like social media scraping for sentiment analysis can throttle the ether between public and private data; as Williams (2023) found, delineating between public and private data depends upon the student's university's ethical policies to define that gray area. As technology ethics are

expanding in complexity and understanding, the loosely demarcated nature of what constitutes participant privacy expectations must be clearly defined.

Reshaping Online Graduate Research with the Use of Technology Ethics

Can a comprehensive IRB review and ethical oversight be fully realized if the student or the reviewer needs to have intimate knowledge of the research outcomes? One of the significant concerns in research is the training provided to graduate students, emphasizing their focus and development within their core discipline with an understanding of ethical guidelines when utilizing technology in research. Scientists are utilizing technology in most facets of their research, thinking about how technology is being integrated into personal and social research as well as the consequences of computing, application, theory, and implementation may have an impact beyond the creation of the research itself (Head, 2020). As ethics should not be applied explicitly to one discipline but all disciplines, the question of the student's exploration of the data with ethical insight is questioned during the ethics review. As graduate student researchers develop their research strategies and methodologies, they need to prioritize the privacy protection of the study's participants with consideration of digital methods. To achieve this, researchers should consider asking themselves contextspecific digital privacy protection questions to ensure the due diligence of participant privacy. Examples of such questions can be simple and straightforward. More questions than answers persist:

 Can the retrieval of the data process be explained thoroughly, as well as the ethical reasoning for using the data? • In a constantly connected and accessible virtual society, can graduate student researchers collect data ethically and responsibly from participants in familiar, explainable language as to what PII is to be collected?

The utilization of ubiquitous technology in research has brought about an elevated awareness of ethical considerations across various elements of research stemming from recruitment to the narration of research results. Most of the standard policies and procedures that researchers implement begin with using clearly defined, informed consent documents written in understandable language to convey transparency of research processes. Shulman et al. (2022) reported issues with communicating instructions and educating users to protect their data. Like an informed consent document used as a method to educate the user/research participant on the privacy of their data and how it will be used, Shulman et al. noted that when it comes to privacy policies, "users may skip or disregard the messages the notifications and warnings convey" (p. 5). However, it is the responsibility of the ethical graduate student investigator to explore how the methods that will be used to collect, analyze, disseminate, and store research data to provide the research participant with both education and respect in keeping the data collected private to the extent of the agreement written in the informed consent. As researchers use ubiquitous technology in research, governance depends on guidance. It should adhere to the guiding principles of an ethical review, which should entail the components of an understanding of the privacy protection methods the researcher will use to safeguard the data when and if the data will be used again, and then move beyond the ethical review guidelines and to educate users with their research through participant

empowerment (Ben-Ari & Enosh, 2013). Until guidance and data protection legislation are enacted akin to the GDPR in the United States, the question of the misuse and privacy of data exists in the back of a research participant's mind.

As noted, an example of such guidance stemmed from The Melo Report, hosted and supported by the U.S. Department of Homeland Security in Science and Technology to provide guidelines and ethical principles for communication Technology Research. The proposed framework was developed by organizational leaders, lawyers, and scholars in the Information and Communication Technology (ICT) field (DHS, 2012). The Melo Report built the ethical framework for ICT research upon the Belmont Principals, including respect for human rights and privacy, the informed consent process, confidentiality and anonymity, minimization of harm and risks, and transparency and accountability. The Report was supported by both the Association for Computing Machinery (ACM) and the Institute of Electrical and Electronics Engineers (IEEE) Computer Society. In a reflection on why the Menlo report failed, Finn and Shilton (2023) stated the following:

In the case of the Menlo Report, the work of the report was shaped by forward-and backward-looking goals. The report authors had future researchers in mind, hoping to enable new forms of research through data sharing. But they were also concerned with repairing a record of past controversial research practices and resolving an uncertainty disrupting their field: whether to treat their research data as human subjects data (pp 2-3).

It may have been for the repair of past research and the uncertainty of disruption that the Office for Human Research Protections (OHRP) did not explicitly state its support or opposition to the Menlo Report, or as other researchers suggest, the Menlo Report was focused on cybersecurity research ethics and did not directly relate to human subject research that falls under the purview of the OHRP (Fiske & Hauser, 2014).

Although the ICT ethical framework has been frequently cited, it has yet to be considered current since 2012 (Finn & Shilton, 2023). Instead, the Report and framework can be found as archived content in the U.S. DHS government website's Cyber Security Division (CSD). Guidelines and frameworks are needed to guide students' progress, and just as technology is dynamic, ethical policies cannot remain static.

Finally, the General Data Protection Regulation (GDPR) enacted in 2018 by the European Union provides a uniform framework that offers consumers greater control over their PII and other data, fosters organizational accountability, and applies strict penalties for noncompliance (ICO, 2023; Fox et al., 2022). GDPR focuses on protecting consumer data privacy and is concerned with the organizational culmination of users' private data; the research purpose or context defines research provisions. Although GDPR is read as a policy with a penalty for organizational collection of private citizen data without the user's knowledge, researchers are polarized on the application of GDPR to research, stating policies are too broad or too strict surrounding the use of secondary data and global data sharing (Soini, 2020). However, the seven fundamental principles of the research under the GDPR include "lawfulness, fairness, and transparency; purpose limitation; data minimization; accuracy; storage limitation; integrity and confidentiality; and accountability," which are tantamount to the application of the Common Rule policies (ICO, 2023, para. 2). Therefore, the broad application in

data collection needs further review and revised to follow a structure with more ethical oversight, accountability and consequences for researchers and organizations that do ethical harm.

Online Graduate Student Ethical Reflection

Suggestions for a path to encourage ethical research practice using ubiquitous technology begin with the online graduate student educational preparation. Training for HSR must cover technology and the ethics of using technology understandably and incorporate reflexivity to ensure ethics training is iterative across the graduate research process. Graduate students may desire to challenge the status quo of ethical review boards, or as Reisig et al. (2022) noted, even prompted by the research supervisor to do so and invite subject matter experts to the table to define and defend the ethics of the process with the use of technology. Students should merge disciplines and learn from each other in ethical computing practices. The defense of having an epistemic challenge in research and needing to understand the ethical ramifications with or without technology is no longer valid. With technological advancements, research in the computing field or integrated technology now requires a greater emphasis on ethical reflection than in previous decades. As ethical norms and quidelines tend to be broadly defined, they exist in academic research as community standards. However, educational institutions promote and educate in responsible research practices, whereby ethics is a shared responsibility (Head, 2020). With guidance from their graduate research supervisor and/or dissertation/thesis committee, the graduate student researcher must consider the methodology to ascertain the

ethical risk versus the benefits of the research outcome and whether the IRB performs an ethical review of the study (Fiske & Hauser, 2014).

Thus, in situations where contextual factors and ethical dilemmas are present, it is vital for the graduate research advisor and/or dissertation/thesis committee members responsible for overseeing graduate students to acknowledge and address any potential technology ethics that the student may overlook. However, if the committee members lack existing ethical insight, there is a risk that issues related to researcher misconduct may arise later. For example, Throne (2022) highlighted Hosseini et al.'s (2022) recommendations for IRBs and HRPPs to establish research ethics and data use frameworks to minimize inherent data biases embedded within datasets and the sustained social reproduction in the use of such data. Therefore, graduate student researchers must be trained to understand these intrinsic biases from the concurrent use of archival data and not solely rely on others to identify these risks and biases. Further, research supervisors should proactively seek and acquire knowledge about ethical considerations in using technology, ensuring they can provide informed guidance and oversight to students conducting research in this domain.

By remaining current with the ever-evolving ethical practices and technological advancements, research supervisors and/or dissertation/thesis committee members can fulfill their roles effectively and contribute to maintaining ethical standards in research. As such, any graduate research ethics program should encompass the entire research process, starting from the conception of research and extending to the publication of findings or attainment of a degree. Specifically, the online graduate research preparation program should instill in newly established researchers the

methods to compose research with ethical considerations, fostering a culture of ethical practice in the context and understanding of the non-proximal oversight by the graduate research supervisor and/or the IRB and ethics review of the research protocols. This includes promoting ethical awareness, education on ethical principles, and encouraging reflective practices. When a program can sustainably provide an ethical framework for graduate student research to build their future research agenda, the chances of ethical research, whether within or outside academic research, may prove ethical practices are sustained and prioritized throughout a post-graduate researcher's career.

RECOMMENDATIONS AND FUTURE RESEARCH

The chapter authors call for two key questions to be considered for future research:

- 1. Do graduate programs best prepare graduate students as post-graduate researchers ensuring that their preparation enables them to flourish as ethical and responsible independent researchers in both academic and professional contexts?
- 2. How important is it to incorporate specialized training related to ubiquitous digital technologies into online graduate programs so graduate student researchers can thrive as post-graduate ethical and responsible independent researchers?
 Other researchers have also called for continued investigation into best practices and preparation for graduate student investigators to ensure they leave graduate institutions as independent ethical, and responsible researchers. Specifically, Reisig et al. (2022) called for continued examination of their IRB violations scale to improve self-reporting capabilities as additional protections from HSR harm and risk. Likewise, Hite et al. (2022) called for future research to explore how training and education for

graduate student researchers can address RCR and mitigate unethical issues within a higher education setting. For digital data collection, Huh-Yoo and Rader (2020) stressed the need to examine further the likelihood of participant data risk/harm and the uncertain characteristics involved in ethical oversight of digital research, which remains largely unknown and under ongoing debate.

CONCLUSION

It is clear from past scholarship that academic institutions should promote and educate in responsible research practices and make ethics a shared responsibility across graduate programs and the institution's research community, which includes IRBs, HRPPs, and any other ethical review body. As such, any graduate research ethics program should instill in new investigators the ethics, principles, and methods appropriate to ensure ethical, responsible research is conducted within an ethical research culture fostered in partnership with the IRB, HRPP, or other ethics review. The online graduate program must consider whether the research component meets the definition of research subject to IRB or other ethical oversight and whether digital methods, such as AI, ML, and data mining/scraping, are allowed before which ethical research learning outcomes are to be included within the graduate curriculum. Thereafter, best practices will consist of authentic research projects mentored by a graduate research supervisor whereby ethical principles are embedded within the learning activities. These steps help to promote ethical and responsible research for graduate student investigators who will be best prepared for a contemporary evolving research climate and encourage ongoing reflective practices to sustain ethical research practices throughout a post-graduate researcher's career. Future research is needed to continue to examine best practices for online graduate research programs to ensure graduate student researchers flourish as post graduate ethical and responsible independent researchers.

REFERENCES

- Bailey, M., Dittrich, D., Kenneally, E., & Maughan. D., (2012). The Menlo Report. *IEEE Security & Privacy*, 10(2), 71–75. https://doi.org/10.1109/MSP.2012.52
- Ben-Ari, A., & Enosh, G. (2013). Power relations and reciprocity: Dialectics of knowledge construction. *Qualitative Health Research*, 23(3), 422–429. https://doi.org/10.1177/1049732312470030
- Bhatia-Lin, A., Boon-Dooley, A., Roberts, M. K., Pronai, C., Fisher, D., Parker, L., Engstrom, A., Ingraham, L., & Darnell, D. (2019). Ethical and regulatory considerations for using social media platforms to locate and track research participants. *The American Journal of Bioethics*, *19*(6), 47–61. https://doi.org/10.1080/15265161.2019.1602176
- Brown, N. (2023). Research ethics in a changing social sciences landscape. *Research Ethics*, *19*(2), 157-165.
- Brighouse, H., Ladd, H.F., Loeb, S., & Swift, A. (2018). *Educational goods: Values, evidence, and decision-making.* University of Chicago Press.
- Ciampa, K., & Wolfe, Z. (2019). Preparing for dissertation writing: Doctoral education students' perceptions. *Studies in Graduate and Postdoctoral Education*, 10(2), 86-108.
- Drolet, M.-J., Rose-Derouin, E., Leblanc, J.-C., Ruest, M., & Williamsjones, B. (2022). Ethical issues in research: Perceptions of researchers, research ethics board members, and research ethics experts. *Journal of Academic Ethics*. https://doi.org/10.1007/s10805-022-09455-3
- Eliasson, M. N., & DeHart, D. (2022). Trauma experienced by researchers: Challenges and recommendations to support students and junior scholars. *Qualitative Research in Organizations and Management: An International Journal*, 17(4), 487-497.
- Finn, M., & Shilton, K. (2023). Ethics governance development: The case of the Menlo Report. Social Studies of Science, 53(3). https://doi.org/10.1177/03063127231151708
- Fiske, S. T., & Hauser, R. M. (2014). Protecting human research participants in the age of big data. *Proceedings of the National Academy of Sciences*, 111(38), 13675–13676.

- Fox, G., Lynn, T., & Rosati, P. (2022). Enhancing consumer perceptions of privacy and trust: A GDPR label perspective. *Information Technology & People*, *35*(8), 181–204. https://doi.org/10.1108/ITP-09- 2021-0706
- Friesen, P., Douglas-Jones, R., Marks, M., Pierce, R., Fletcher, K., Mishra, A., ... & Sallamuddin, T. (2021). Governing Al-driven health research: Are IRBs up to the task? *Ethics & Human Research*, *43*(2), 35-42.
- Friesen, P., Gelinas, L., Kirby, A., Strauss, D. H., & Bierer, B. E. (2022). IRBs and the protection inclusion dilemma: Finding a balance. *The American Journal of Bioethics*, 1-14.
- Head, G. (2020). Ethics in educational research: Review boards, ethical issues, and researcher development. *European Educational Research Journal*, 19(1), 72–83.
- Hine, C. (2021). Evaluating the prospects for university-based ethical governance in artificial intelligence and data-driven innovation. *Research Ethics*, 17(4), 464–479.
- Hite, R. L., Shin, S., & Lesley, M. (2022). Reflecting on responsible conduct of research: A self-study of a research-oriented university community. *Journal of Academic Ethics*, 20(3), 399-419.
- Hsieh, H.F., & Shannon, S.E. (2005). Three approaches to qualitative content analysis. Qualitative Health Research, 15(9), 1277-1288. https://doi.org/10.1177/1049732305276687
- Hite, R. L., Shin, S., & Lesley, M. (2022). Reflecting on responsible conduct of research: A self-study of a research-oriented university community. *Journal of Academic Ethics*, *20*(3), 399-419.
- Huh-Yoo, J., & Rader, E. (2020). It's the Wild, Wild West: Lessons learned from IRB members' risk perceptions toward digital research data. *Proceedings of the ACM on Human-Computer Interaction*, *4*(CSCW1), 1-22.
- Information Commissioner's Office (ICO). (2023, May 19). A guide to data protection principles. A Guide to the Data Protection Principles; ICO. https://ico.org.uk/for-organisations/uk-gdpr-guidance-andresources/data-protection-principles/a-guide-to-the-data-protection-principles/
- Lewis, C., & Throne, R. (2021). Autoethnography and other self-inquiry methods for practice-based doctoral research. In *Practice-based and practice-led research for dissertation development* (pp. 87-107). IGI Global.
- Lynch, S., & Kuntz, A. (2019). A critical autoethnography of a doctoral students' research journey: Learning to take risks in the academy. *Curriculum Studies in Health and Physical Education*, *10*(2), 156-171.
- National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. (1979). *The Belmont Report: Ethical principles and guidelines for the protection of human subjects of research*. U.S. Department

- of Health and Human Services. https://www.hhs.gov/ohrp/regulations-and policy/Belmont-report/read-the-belmont-report/index.html
- Pater, J., Fiesler, C., & Zimmer, M. (2022). No humans here: Ethical speculation on public data, unintended consequences, and the limits of institutional review. *Proceedings of the ACM on Human Computer Interaction*, 6(GROUP), 1-13.
- Reisig, M. D., Flippin, M., & Holtfreter, K. (2022). Toward the development of a perceived IRB violation scale. *Accountability in Research*, 29(5), 309-323.
- Saura, J. R., Palacios-Marqués, D., & Iturricha-Fernández, A. (2021). Ethical design in social media: Assessing the main performance measurements of user online behavior modification. *Journal of Business Research*, 129, 271–281. https://doi.org/10.1016/j.jbusres.2021.03.001
- Saura, J. R., Palacios-Marqués, D., & Ribeiro-Soriano, D. (2021). Using data mining techniques to explore security issues in smart living environments on Twitter. *Computer Communications*, 179, 285–295. https://doi.org/10.1016/j.comcom.2021.08.021
- Saura, J. R., Ribeiro-Soriano, D., & Palacios-Marqués, D. (2022). Assessing behavioral data science privacy issues in government artificial intelligence deployment. *Government Information Quarterly*, 39(4), 101679. https://doi.org/10.1016/j.giq.2022.101679
- Shulman, Y., Kitkowska, A., & Meyer, J. (2022, July 5). *Informing users: Effects of notification properties and user characteristics on sharing attitudes*. ArXiv.Org. https://doi.org/10.1080/10447318.2022.2086592
- Slovin, L. J., & Semenec, P. (2019). Thinking/writing within and outside the IRB box: Ethical disruptions of data in qualitative research. *Reconceptualizing Educational Research Methodology*, *10*(1), 14-27.
- Soini, S. (2020). The GDPR, secondary research purposes and global data sharing— One-wheel too many. *European Journal of Human Genetics*, *28*(6), 694. https://doi.org/10.1038/s41431-020-0608-x
- Stevens, D. D., & Caskey, M. M. (2022). Building a foundation for a successful doctoral student journey: A scholarship of teaching and learning investigation. *Innovative Higher Education*, 1-23.
- Throne, R. (2022). Adverse trends in data ethics: The AI Bill of Rights and human subjects' protections. *Information Policy & Ethics eJournal*. http://dx.doi.org/10.2139/ssrn.4279922
- U.S. Department of Homeland Security (DHS), Science and Technology, Cyber Security Division (CSD). (2012). The Menlo Report: Ethical principles guiding information and communication technology research (No. 249; p. 17). https://www.dhs.gov/sites/.../CSD-MenloPrinciplesCORE-20120803_1.pdf
- Williams, R. (2023). Think piece: Ethics for the virtual researcher. *Practice*, 5(1), 41–47.